

# Compliance to the Environmental Law & Its Implications for the Oil & Gas Exploration & Production in Pakistan

Suhaib Ilyas

suhaib987@hotmail.com, USPCASE-P

Received: 16 June, Revised: 26 July, Accepted: 05 August

**Abstract**— The current Climate change issues in Pakistan & Globally is not merely a coincidence rather this has developed and got worse with the passage of time through industrial revolution, more demand of energy and the race to further development among each country. To meet the energy demands, fossil fuels, one of the primary resources of energy are being explored with unprecedented rate worldwide. May it be Land or Sea, deserts or forests, if there is a potential suspected, the Oil exploration firms start their activities. On one side, if this helps to meet the growing energy demands, on the other, more and more effects of such activities are changing the environment. To avoid severe and immediate damages, environmental protection rules and laws are being passed Globally the purpose of which is to make sure such activities are carefully planned and all checks are in place prior to starting the operations to avoid any harmful impact on the ecosystem. Various countries have customized these laws as per their environmental visions and established organizations which make sure these laws are implemented and followed. Pakistan, a developing nation, is one of the countries who are in the game of Oil exploration also has set forth such Acts & Laws but the assurance that the Companies are operating under the established Environmental law of the Country has never been completely done. International firms and National entities have their own set of checks in place which try to follow the Federal and Provisional rules. The goals and authority of Provisional environmental protection agencies are defined at policy level but the implementation and monitoring steps have various loop holes which need to be filled. The differences in the working methodology, related to environment, between Government owned firm vs International operators also shows the mindset of the local environmental agencies. The environmental policies need to be updated at Federal and Provisional levels with more implementation and monitoring structure in place.

**Keywords**— Pakistan, Exploration and Production, Oil and Gas, Environment, Hazards, Mitigation

## I. INTRODUCTION

Pakistan is under an acute energy shortfall since 2006 [3]. This predicament is assuming alarming proportions in its severity with each passing day. This shortfall in supply has

given a negative impact, on society as well as economic development. This is also reflected in an estimated 4-7% loss to the country's GDP [5]. Pakistan's demand of energy has spiked at yearly consumption increment rate of 4.8 percent in the past few years. In the next few years, expectation are that it will grow at a rate of 8 to 10 percent yearly [6]. This is resulting in an urgent requirement to initiate a scenario where the supply of power and development capabilities with major infrastructure develops at the rate of 7 to 8 percent per annum so that steady growth can be supported in the Country's' GDP [6]. Despite having a major stock of such indigenous natural resources, inability to adhere the utilization of the existing energy mix and formulate an integrated energy policy has been one of the primary shortcomings in the lack of growth in this sector.

Following were the key aims of the study:

- To review legal guidelines governing the issues related to community welfare and environmental protection during exploration activities in Pakistan
- To identify key flaws in legal framework as well as the mechanisms of implementation and monitoring of those laws and rules
- To examine the implementation process and issues related to it on the legal framework specially in the oil and gas producing areas

Scientists and governments have now started to strongly believe on climate change issues and are acting rapidly to avoid the damaging impacts of these. Organizations have initiated to change their processes to make themselves ready for a carbon controlled scenario. Below data shows a few main potential environmental hazards of the fossil fuel industry;

- Ground water issues due to release of water effluents consisting of inorganic compounds such as salts which discharge without treatment
- Thermal contamination due to release of effluents with high temperatures as compare to recipient water reservoirs
- Water pollution caused by oil spill

- Particulate discharge in air due to activities at various industrial plants

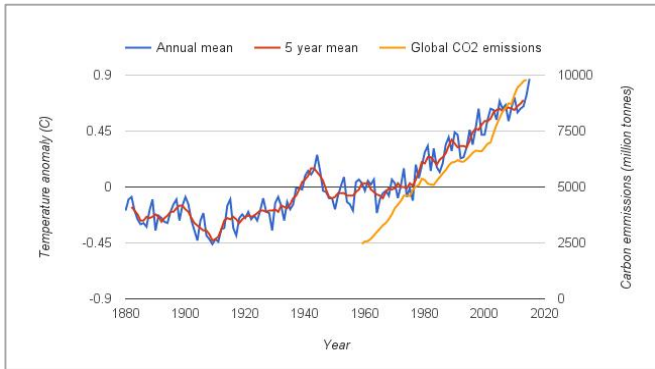


Figure 1. NASA Worldwide Land Ocean Temperature Chart

## II. LITERATURE REVIEW

### A. National Environment Policy - 2005

This policy provides a framework for addressing the environmental troubles Pakistan is facing, mainly pollution of the clean water bodies and coastal waters, air pollutants, lack of waste disposal, cutting down forests, extinction of biodiversity, natural devastations, and climate variations. It additionally offers directions for addressing various sectorial troubles in addition to the reasons of environmental affects and meeting global duties.

The national environmental policy, while aiming at the goals of the Pakistan conservation objective, National environmental plan and different current environmental associated national guidelines, techniques and action plans, highlights vast guidelines to the federal and provincial governments as well as local government for addressing the environmental issues and making sure controlled management in their environmental assets. [9]

### B. Pakistan Conservation Strategy

The National Conservation Strategy (NCS) is the major policy record of the Pakistan Government on national environmental problems. The policy was accredited by the Cabinet in Q1 of 1992 [10]. The Strategy additionally gained popularity by international agencies providing aids, specifically the World Bank. This policy identifies 14 major sectors which include protection of biodiversity, pollution control, soil and water resource and preservation of old cultural history and advises priority attention to these core sectors in order to preserve Pakistan environment.

A review of the goals achieved of the policy was done in 2000 which concluded that achievements under this NCS have been majorly due to awareness spreading and institutional building rather than real development to the ecosystem. Similarly, the NCS was not made and is not properly centered for Pakistan sustainable development goal (GoP, November 2000) [8]. The requirement therefore rises for an extra focused National Action Plan on environment, which will bring about actual enhancements in the conditions of Pakistan's environment with deeper focus on reduced poverty issue and

development in the economy other than environmental sustainability. [3]

The NEAP was recognized by the Pakistan Environmental Protection Council under the authority of leadership of Pakistan in February 2001. NEAP now consists of Pakistan's environmental plan and its primary objective is to start actions that ensure public health, enhance sustainable living and promote the quality of day to day activities.

Pakistan Government and United Nations Development Program (UNDP) have mutually started a support area, known as the National Environmental Action Plan - Support Program which was approved in October 2001 and the implementation began in 2002 [1].

### C. Pakistan Environmental Protection Act 1997

This Act is the fundamental legal document to empower the Country's leadership to establish the rules and guideline for environmental protection.

The Act is generically relevant to air, marine, soil pollution, it also covers the management of hazardous waste. Penalties are kept for those who bypass the provisions under this Act. Authority of the Government Environmental Protection Agencies (EPAs) are extensively increased under this law and are been given authority to initiate investigations if the law is breached related to environmental issues. This can be started either on their own or upon receiving a complaint. [2]

According to section 12 of the Act, no task concerning to the construction projects or any variation in the physical environment is allowed to start unless the prerequisites are all met [7]. This includes conducting IEE or EIA and submitting a report to the relevant authorities.

### D. National Environmental Quality Standards

The NEQS were formulated in 1993 and revised in 2000 for the last time [4]. They include the fundamental guidelines for liquid and gaseous substances emissions coming from municipal and/or industrial discharge. These requirements advise the maximum concentration for allowable liquid effluent before it's released into ocean, land water supplies & sewage systems, similarly gaseous emissions in air from commercial or industrial activities.

During the development and operation phase of the exploration & production activities, these standards will apply to all such emissions.

Table: 1 National emission requirements (NEQS)

Date	Number	Scope
1993	742(I)/1993	Liquid, gaseous emission, vehicle noise
1995	1023(I)/1995	Gaseous discharge - power plants
2010	1062(I)/2010	Air
2010	1063(I)/2010	Quality of water for drinking
2010	1062(I)/2010	Noise pollution

### E. World Bank Environmental Guidelines

Publications of the World Bank that contain environment related guidelines are;

- Environmental evaluation focused on operational Policy 1999
- Environmental evaluation sourcebook, volume I, 1991
- Environmental evaluation sourcebook, Volume III, 1991
- Pollution control handbook, UN environment protection initiative, 1998

Initial two publications give the generic recommendations for the planning of an EIA and reviews the EIA participants along with project designers. Sourcebooks specifically have been formulated by keeping financial institutions projects in view and are greatly relevant to impact assessment evaluations of bigger scale infrastructure developments activities. It presents a huge amount of information which is beneficial to environmental research teams and project firms.

### III. METHODOLOGY

#### A. Site Study

The IEE was done and developed in line to the guidelines of Pakistan Environmental Protection Act, Pakistan Environmental Protection Agency (Review of EIA/IEE) Regulations-2000, and the Environmental Assessment Procedures of Pakistan.

Various steps undertaken in the IEE preparation includes getting an idea of the planned activity, review of legal documents, policy and standards, IEE area of interest and techniques involving gathering of data pertaining to physical, socio-economic as well as biological environment along with cultural aspects, hazard identification, mitigation controls with checks and audit process, management plan development and documentation.

The team conducting the IEE visited the activity area in 2018. During the visit, base line information on the conditions involving community, eco-system, cultural heritage of the activity area was gathered. Communities and their representatives living in and nearby the activity area were also taken into confidence and their concerns, opinions were also documented during the study.

Environmental impacts investigated for this IEE study are classified AS;

- Effects on physical environment
- Effects on biological environment
- Effects on socio-economic environment

For each impact, a brief evaluation of the issues related to environment is performed. To reduce or eliminate effects highlighted during the study, control measures, which may reduce the exposure or probability of happening of an impact are mentioned.

These mitigation measures are based on either;

- Changes in project planning and design

- Improved monitoring techniques
- Compensation or substitutes or rehabilitation of the habitat

#### B. Proposed Project Area

Project owner was allocated Badin area, South of Pakistan for performing oil and gas exploration in the block. The firm planned to initiate seismic activities in Buzdar regions of the block. The vicinity in which the 3D survey is planned was designated as the "project area". As a requirement of the license issued by the Government, Project owner planned to gather data of 3D seismic information in approximately 398 Sq Km area. TGA region covers around 150 Sq Km whereas Buzdar region covers an area of about 248 Sq Km.

#### C. Proposed Project Overview

Planned survey will include the gathering of 3D seismic information. Seismic information will be gathered using deep hole method, which involves the detonation of dynamite in holes with a depth of 25 m. around ~7 kg of dynamite will be detonated in each hole. Seismic data will be recorded using geophones, which will be laid out along the shot holes.

The project activities require one base camp and at least two fly camps, which will have accommodation and messing facilities. Fly camps will facilitate logistics. For seismic activity strength of the crew is around 500 - 600 persons.

It is envisaged that the seismic survey activity may affect the natural and socio-economic conditions of the surroundings. Primary goal of implementing environmental strategy is to direct, review and manages options so that environmental effects and risks are continually reduced to as low as practicably possible and performance objectives and standards are met for the duration of the activity.

The 3D seismic activity is expected to affect the following:

- Geomorphology
- Soil & water
- Climate
- Natural vegetation
- Socio-economic impacts

#### D. Justification

The regulations of Pakistan Environmental Protection Agency explain the different lists of activities which require an Initial Environmental Examination (IEE) or Environmental Impact Assessment (EIA) in Schedules I & II.

As per the EIA/IEE Regulations: "An owner of an activity under any point listed in Schedule I is obligated to file an IEE with the Federal authority, moreover provisions covered in section 12 will be applied to this activity".

Similarly, "An owner of an activity under any point listed in Schedule II is obligated to file an EIA with the Federal authority, moreover provisions covered in section 12 will be applied to this activity".

As per Schedule I, Category B (Energy), the activities including oil and gas exploration & production require an IEE, keeping in view;

- Minor sensitivity of micro-environment
- Impact of activities such as construction and operations, confined to environment
- Meeting the cited rules

If any such activity is planned out in a sensitive zone then requirement of IEE would be changed to an EIA. The activity would come under Category B, Schedule I which requires an IEE assessment.

Similarly an IEE assessment is done and the documented findings is to be submitted to EPA of Sindh Province for review and approval. Both TGA and Buzdar regions of Badin block were carefully studied on SOP maps and found that project area does not include any protected area and may undergo an IEE study.

#### IV. RESULTS AND DISCUSSIONS

##### A. Monitoring the Policy Implementation

Monitoring is also one of the weakest areas in the policy. The government as well as the exploration firms are assigned some major roles and responsibilities once agreement of exploration and production is reached between both. However, there are no proper monitoring mechanisms to make sure that these companies are really fulfilling their roles and responsibilities in the field especially with regard to the local environment and the communities. On the contrary, the government's key concern, according to the policy, is to provide maximum facilitation to the exploration companies to make sure that more and more firms invest in this sector. For that purpose, the section V of the policy titled "Implementation and Removal of Difficulties", suggests formation of "a committee to discuss the concerns of the execution of this guideline, excluding problems, focusing on abnormalities and authorizing framework for development of the institutions to further improve it effectiveness for policy making and regulations for upstream industry".

Committee will have the following;

- Minister, Petroleum and Natural Resources
- DC, Planning Commission
- Secretary, Finance
- Secretary, Petroleum
- DG Petroleum Concessions

The complete above process emphasizes on the facilitation to the exploration companies working in the Country. On the contrary, there are serious complaints about the multinational firms of violating their commitments and agreements with the government, regarding jobs for the local communities, making investments for social welfare and development of the local areas and communities and preventing the local environment from degradation during the phases of exploration and production. There are no proper mechanisms that should ensure

monitoring the implementation on the sections of the policy, dealing with the prevention of the local environment, investment in community welfare projects etc

##### B. Gaps in Policy Framework

Oil and Gas Policy 2007 can be termed as a positive document as many key aspects of exploration and production have been covered in the document. However, there is census among the local communities, civil society activists and experts that still there are many gaps in the policy. Some of gaps are as under:

- The key emphasis of the policy is on facilitating the exploration and production firms to invest in the fossil fuel sector, however, there are no proper monitoring mechanisms in place to monitor the implementation on respective environmental laws as well as the laws and rules dealing with local community welfare, trainings and jobs to the local communities etc.
- There are schedules for payment of royalty and production bonus and other payments to be made by the exploration firms.
- Policy in its bid to attract more and more investment in the sector tries to safeguard the rights and privileges of multinational oil and gas companies. However, there is little emphasis in the policy on safeguarding the rights of the local communities and the local environment of the oil and gas producing areas
- The policy also places little emphasis on the participatory approach specially the participation of the provincial and district governments, local communities and their representatives in the process of issuing licenses for exploration and production sector, despite the fact that the locals are the key sufferers of impacts from the activities on such exploration firms
- The environmental effects of the oil and gas exploration and production have also not been properly addressed in the policy despite the fact that globally there are serious concerns of the environmental impacts of oil and gas exploration and production. Little emphasis has been placed on the possible environmental risks of the oil and gas exploration as well as the mitigation measures to prevent such risks.
- The policy also deprives the local communities and their representatives of their right to information by emphasizing on the confidentiality of the data. This is also violation of human rights as right to information is also one of the basic human rights. Pakistan has already enacted Freedom of Information (FOI) Ordinance 2002. However, the oil exploration and production policy sections with regard to access to information are in conflict with the Freedom of Information (FOI) Ordinance 2002



Figure 2. Key Gaps in Policy Framework

### C. Penalties on Non-Compliance

Penalty for not following the provisions and the guidelines of discharges and emissions and similar environmental protection orders is a fine that can go to 1 million PKR, in case of first offence. Similarly, not conforming to rules regarding the handling of hazardous sub-stances, penalty may go to 100,000 PKR. Moreover, penalties for second or repeated offenders can be shut down or confiscation of site, machinery or items involved in the offence. Penalty can also be to bring back the environment to its original form at the violator's expense or to pay compensation for any damage caused by the violation, in addition to jail time for up to two years.

### D. Poor Awareness

Generally there is lack of understanding among the local communities as well as the elected representatives, government officials and civil society at large about the severe possible environmental impacts of oil and gas exploration activities. There is little awareness as to how the different phases of oil and gas exploration and production affect the local environment, biodiversity and natural livelihood resources. The local communities and even official know little about the global experiences of increased environmental degradation as a result of oil and gas exploration and have little knowledge of the different chemicals being used during the oil and gas exploration process and the impact of those chemicals on the local environment

### CONCUSLION

The centralized system at the federal level of awarding petroleum and gas exploration licenses, taking no provincial and local governments into confidence, has emerged as one of the key problems associated with the policy, legal framework, and their implementation. The centralization in the process and systems has been observed at both the levels i.e. policy making as well as policy implementation specially awarding concession licenses to the Exploration and Production [E&P] firms. As for as the policy formulation is concerned mainly it has been the Ministry of Petroleum and Natural Resources shaping the policies with regard to awarding concession licenses to the oil and gas operating firms, with almost no

participation of other stakeholders including the government, civil society and the local communities.

The whole process of agreements of awarding concession licenses to the oil and gas companies and monitoring the process of implementation need complete overhauling. There is greater need of decentralizing the process in a way that not only the Ministry of Petroleum and Natural Resources but also other key stakeholders including the concerned provincial departments, elected leadership, concerned district level departments / government and elected representatives should also be made part of the Petroleum concession agreement process to ensure greater participation and inclusion in the process. As a first steps all the policies and laws should be reviewed with the participation of all the key stakeholders at the federal, provincial and district level making the policies and laws more community and environment friendly. There is need of removing the abnormalities in the policy and laws, ensuring greater space and participation of different stakeholders in the decision making process. Besides, there is also a need is to bring changes in the monitoring mechanisms to make these mechanisms clear and participatory. In place of leaving each and every monitoring process on the Ministry of Petroleum and Natural Resources, there is a strong need to ensure participation of the concerned provincial and district level departments as well as the elected representatives and civil society representatives in the monitoring process.

The government policy and the legal framework should ensure that the provincial and district government as well as the local communities, their representatives and civil society organization regularly receive information / data on not only oil and gas exploration but also on the expenditures by the oil and gas companies on the community development, environment and other heads in the local areas.

The Environment Impact Assessment study preparation and dissemination processes should be localized with greater participation of the local communities as well as local governments and elected representatives in the processm

### REFERENCES

- [1] M. Jamaal and I. Siddique, " An Outlook of Energy in Pakistan", <http://www.depgis.state.pa.us/2017oilandgasannualreport/>, Oct 2017.
- [2] T. Morgan, "China Now World's Largest Oil Importer; Effect on Global Market," 2015.
- [3] S. Division, "Census of Mining and Quarrying Industries ( CMQI )," Washington, DC, 2005.
- [4] E. Sector and J. Morgan, "Chapter 10 Energy Security and Affordability," pp. 119–130, 2014.
- [5] Robinson, D.N. (1992). "Energy Year Book", US, 2018
- [6] Schwartz, J, "Exploration affects on Region", The Deepwater, Sep,1999
- [7] S. Alam, A. Fatima, and M. S. Butt, "Sustainable development in Pakistan in the context of energy consumption demand and environmental degradation," J. Asian Econ., vol. 18, no. 5, pp. 825–837, Oct. 2007.
- [8] N. Douglas, "Special interest groups and cases," Conservation Ecosystem, 2014.
- [9] J. Farley, " Emission control techniques and standards", world press, Oct, 2017
- [10] H. K. Jessant, W. Wherever, and Y. Mulugetta, " World bank Socio Economic policies on Energy Sector", Press report, 2014

**How to cite this article:**

Suhaib Ilyas “Compliance to the Environmental Law & Its Implications for the Oil & Gas Exploration & Production in Pakistan”, International Journal of Engineering Works, Vol. 8, Issue 08, PP. 185-190, August 2021, <https://doi.org/10.34259/ijew.21.808185190>.

